

**ABSTRACT**

A vibration damping device is described that dampens vibration produced during the conversion of rotational motion into reciprocal motion. The damping is performed using a simple structure wherein first and second conversion mechanisms are symmetrically arranged with respect to a plane of symmetry, first and second rotating shafts rotate opposite to each other at a constant speed, and the rotational motion is converted into reciprocal motion. The total of mass acting on gravity centers of a first balancer and a second balancer is approximately equal to the total of mass reciprocally driven by a first driving shaft and a second driving shaft. Both gravity centers are positioned 180 degrees to the first driving shaft and second driving shaft across the axes of the first rotating shaft and second rotating shaft. As a consequence, the forces in the direction of an axis can be balanced suppressing vibration.